ABSTRACT:

A one-dimensional numerical implementation of the Lemaitre damage model is presented. The implementation is close to classical finite element schemes but can be realised by simple codes or by the application of commercial computer algebra systems. Based on the presented theory and computational algorithm, the elasto-plastic deformation of a one-dimensional bar is simulated. The damage evolution is evaluated for different isotropic hardening behaviour and stated as a function of the plastic strain. The described algorithm allows a simple investigation of the influence of different parameters on the damage evolution.